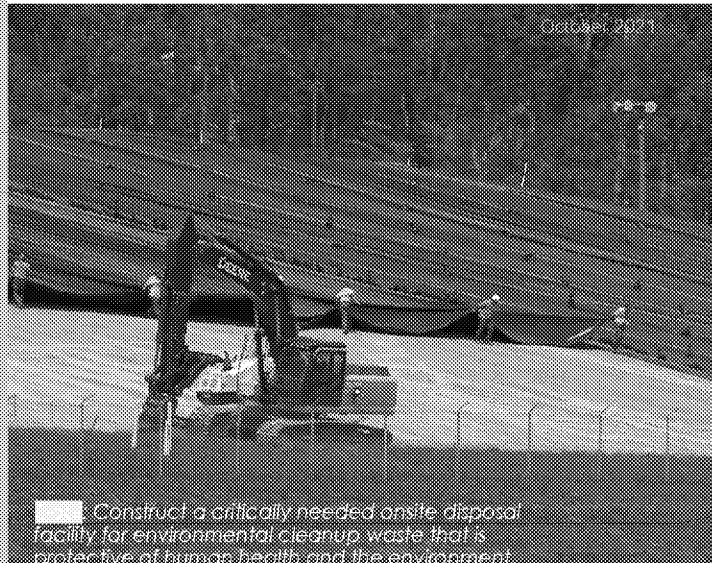


Environmental Management Disposal Facility SITE SELECTION



The ability to dispose of cleanup waste onsite has been fundamental to the success of the U.S. Department of Energy's (DOE) environmental management mission on the Oak Ridge Reservation (ORR). With the current disposal facility nearing capacity and significant cleanup remaining, the need for a new onsite facility is imminent.

The new facility, known as the Environmental Management Disposal Facility (EMDF), allows DOE to maintain its cleanup momentum in Oak Ridge, enhancing safety and enabling science and national security missions. DOE has worked collaboratively with the U.S. Environmental Protection Agency (EPA) and Tennessee Department of Environment and Conservation (TDEC) on a science-driven approach that ensures a safe and protective design for the proposed engineered disposal facility.



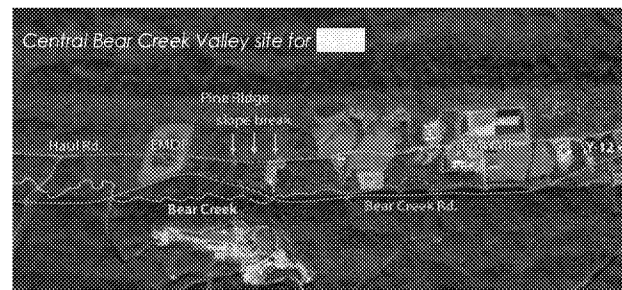
Construct a critically needed onsite disposal facility for environmental cleanup waste that is protective of human health and the environment.

Considerations for Site Selection

DOE evaluated 16 locations across the 32,000-acre ORR to find a site with the geological characteristics most suitable for the facility. DOE, in coordination with EPA and TDEC, evaluated the geology, groundwater flow, and anticipated land use associated with each site.

EMDF would be constructed on federal land within Bear Creek Valley on the south side of Pine Ridge, which provides geologic, groundwater, visual, and noise barriers from the nearest community.

After collecting extensive geologic and groundwater data from numerous investigations, DOE selected this site due to its isolation from flooding concerns, significant groundwater resources, and streams. Data reveals that groundwater flows from Pine Ridge toward Bear Creek, with some lateral flow to the northern tributaries, while mostly avoiding the EMDF site.



Commented [LE1]: Although this is the topic, the general public will not be familiar with the term EMDF. Suggest using "landfill" as that is much easier to understand. Landfill for cleanup waste is also easy to understand.

Commented [LE2]: This title does not mean anything to the average person. Suggest using "Oak Ridge Landfill and Proposed Location Details" or "Oak Ridge Landfill Proposed Location and Water Resources"

Commented [LE3]: I'm not sure this goal needs to be called out here. What does the mean to the general public?

Commented [LE4]: Suggest using this call out box to have clear titles that are easy to understand. Second option is to restructure the current titles.

- Why is DOE proposing a new landfill (EMDF)?
Need to safely dispose of remediation waste at Oak Ridge...

- Which site location details are most important to consider?

The landfill location must be able to be protective of groundwater and surface water resources such as nearby creeks.

- Why is this important?

It's important for the public to be aware of things that might affect their environment and recreational activities. You can be involved in the decision making process. If you would like to provide feedback, please do so by....

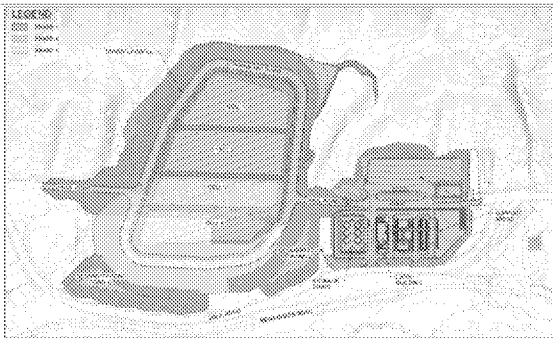
Commented [LE5]: Should we add arrows to represent groundwater/surface water flow away from the EMDF?

[SHAPE * MERGEFORMAT]

Environmental Management Disposal Facility Design

The EMDF is designed to hold ~2.2 million cubic yards of waste that will primarily be generated by the cleanup of deteriorating, contaminated facilities at Y-12 National Security Complex and Oak Ridge National Laboratory. The 25-acre disposal cell area will be constructed in three phases and contain four waste cells (below).

The facility's design will use engineering features to ensure waste remains isolated from the surrounding environment. The liner system (right) includes a protective 15-foot multi-layer base beneath the waste that will be effective in preventing groundwater contamination. When the landfill is completely filled, it will be covered by a multi-layer cap composed of low-permeability clays and synthetic sheeting. The top layer of the cap will be a 4-foot-thick erosion control layer of soil and grasses that provide further protection.

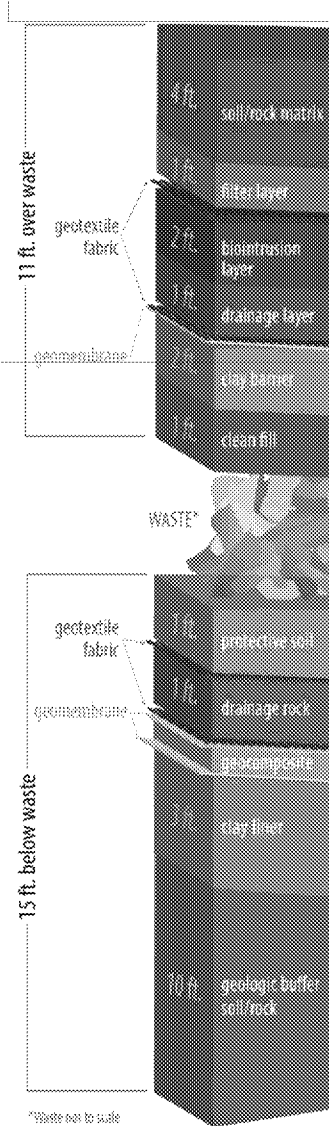


Gathering the Data

DOE used numerous characterization/sampling locations, shown in the graphic on page 3, to inform its design. The data gathered at these locations demonstrated fluctuations in groundwater elevations with seasons and rainfall. The highest groundwater elevations occur following large rainfalls in the wet season from December through March. Typically, a short-term increase and decrease in groundwater elevations occur directly related to rainfall.

At the proposed EMDF site, groundwater elevations in the highest parts of the knoll area are higher than the projected elevation of the EMDF liner system. However, groundwater modeling simulations of the area after construction reveal the impermeable liner system will act as a cover that effectively prevents rain from entering the subsurface. As a result, the groundwater elevations were calculated to decline below the liner/geobuffer system and remain below the liner/geobuffer system following construction.

EMDF Liner System



Commented [LE7]: Can a rough estimate of the thickness of waste be included on this graphic?

Commented [LE6]: The text on this image needs to be bigger for the reader to more easily see. The LWTs needs to be spelled out and explained somewhere in the fact sheet.

Waivers/Exemptions

The Applicable or Relevant and Appropriate Requirements (ARARs) for the separation required between the disposed waste and groundwater or surface water are included in the draft Record of Decision. Two waivers/exemptions to siting criteria were granted have been requested, with DOE using other measures and design features to ensure protectiveness:



Commented [LE13]: Include a caption on this photo

Commented [LE11]: These waivers are proposed until the final ROD is in place, correct?

• A Toxic Substances Control Act (TSCA) waiver is requested was allowed for two chemical waste landfill requirements: (1) regarding the hydraulic requirement that there is no hydraulic connection between the site and flowing surface water, and (2) also to the requirement the bottom of the landfill liner system or shall be at least fifty feet, fifty-foot separation from the historical high water table. The requested waiver is allowed based on the robust engineered liner and geologic buffer system that are part of the remedy DOE is installing that and fulfill the intent of the siting criterion to prevent rapid release of contamination. These components of the remedy are evidence that operation of the EMDF, the engineering design I will not present an unreasonable risk of injury to health or the environment from PCBs, achieves the level of performance and protection of health, welfare, and the environment that is equal to the original requirement.

• An exemption to a TDEC NRC-based disposal siting criterion that states "The hydrogeologic unit used for disposal shall not discharge groundwater to the surface within the disposal site." An exemption was requested based on: (1) the ability of the 15-foot-thick engineered liner and geologic buffer system and 11-foot-thick cover system to prevent releases from groundwater to surface water, and (2) limits on waste contaminant acceptance and accumulation that reduce the impact of potential future releases.

[SHAPE * MERGEFORMAT]

Commented [AC12]: Deleted bc that is the language used for cercla waivers. In this case, a TSCA waiver is being used (rather than a cercla waiver).

Commented [LE14]: Is key point #1 accurate?

Commented [LE15]: Should add 1-2 sentences on how public comment is considered in the final cleanup decision and how a responsiveness summary will be written to identify how public comment affected the decision.

DOE will accept written comments on the EMDF fact sheets any time from October 4, 2021 to November 4, 2021. You may submit your comments to:

Mr. Roger Petrie,
OREM Regulatory Affairs
DOE Oak Ridge Operations
P.O. Box 2001
Oak Ridge, TN 37831

OR

[HYPERLINK "mailto:OakRidgeEM@orem.doe.gov"]



U.S. DEPARTMENT OF

ENERGY

OAK RIDGE OFFICE OF

**ENVIRONMENTAL
MANAGEMENT**